COUNCIL ON ANIMAL AFFAIRS

DIGITISATION OF THE LIVESTOCK FARMING SECTOR SUMMARY

The purpose and activities of the Council

The Council on Animal Affairs (Raad voor Dierenaangelegenheden, RDA) is an independent council of experts, which advises the Minister for Agriculture, Nature and Food quality of the Netherlands. This advice is submitted on request and by the Council's own initiative regarding complex, multidisciplinary issues relating to animal health and welfare. The RDA currently comprises some forty experts with a wide range of backgrounds and expertise, who serve on the Council in a personal capacity, independently and without any outside influence.

The Council on Animal Affairs considers issues across the entire spectrum of animal policy: on captive ("domesticated") and non-captive ("wild") animals, smallholding, or hobby farm animals, companion animals (pets), commercially raised animals and laboratory animals.

The Council records the conclusions of its deliberations in opinions. These documents provide an overview of the scientific and societal background to various issues, and include recommendations on policy options and avenues for resolving potential problems. Consensus is not a requirement for the inclusion of opinions; an opinion may contain views held by a minority of Council members.

Preface

The rise of the Internet of Things has accelerated digitisation in the livestock farming sector. Management systems have unlimited access to big data from process equipment, electronic identification, sensors and other sources and enables them to control automated processes. While this can result in improved care, quality and food safety and greater transparency for consumers, it can also be accompanied by developments that are less desirable for animals and entrepreneurs. It can contribute to maximising scale and it can be detrimental to the contact between livestock farmers and animals. Digitisation will have an impact on interrelationships in the livestock farming sector: between humans and animals, among humans, and among animals.

With this advisory report the Council on Animal Affairs aims to provide further insight into the impact of digitisation on livestock farming animals, viewed integrally from the perspective of the animals, livestock farmers, and the market and society. Identifying the opportunities as well as the threats provides reference points for public and private policymaking.

These are set out in an advisory report, of which this public edition provides a concise view. The complete report can be downloaded from the RDA *website*.

The Hague, June 2019

Jan Staman, LLM,
Chairman of the Council

Marc Schakenraad,
Secretary of the Council

COUNCIL ON ANIMAL AFFAIRS

DIGITISATION OF THE LIVESTOCK FARMING SECTOR

SUMMARY

RAAD VOOR DIERENAANGELEGENHEDEN

Digitisation of the livestock farming sector
Independent advisory report

Question: Digitisation is spreading rapidly in the livestock farming sector and that also has consequences for animals. What do governments and market parties need to do to utilize the opportunities and possibilities created by digitisation to their advantage, while also reducing the risks that simultaneously occur?

Background: The livestock farming sector is experiencing a rapid emergence of digital techniques for collecting data and communication. 'That raises questions in relation to animal welfare', says Gé Backus, chairman of the Forum responsible for preparing this advisory report. The principal reason for raising this question now is the rise of the Internet of Things: sensors and other measurement devices that exchange data and initiate actions from that without any user involvement.

Considerations: 'Naturally, we first examined what is available on the market and what is under development. The market is producing ever cheaper sensors that can be connected to one another or with process and management systems using wireless networks. While that may sound simple, in reality it is very complicated due to the speed of the developments, and you don't know what will follow the next innovation. Nor is it possible to see past the next bottleneck. This led us to make ongoing estimates of the nature and scale of the developments. That enables us to make statements about the threats and opportunities that arise for the parties concerned: animals, livestock farmers and market/society. Take for example, the availability of large quantities of sensor data. If used correctly, you can see better if there are any particular risks in relation to health and nutrition. But improper use can harm animals, due to reduced human contact and human control. There are always threats and opportunities, and that is reflected in all three perspectives. We did not want, and more importantly, could not say: do this or don't do that! But we do say: each new development comes with certain opportunities and threats; be sure to look into them!'
According to Backus it is clear that developments are advancing rapidly and that they will have a major impact on livestock farming operations. Doing nothing is not an option. And: 'With sensible policies, from both the public and private sectors, we can make sure that those developments go in the right direction for the benefit of humans, animals, the market and society.' To contribute to this, the Forum has made several recommendations: 'You cannot predict what is coming next, but you can make sure to keep a sharp eye on developments in the field of digitisation so you will be able to act fast and adequately on them.'

Recommendations: One of the main recommendations is to let government and businesses look more towards goal-oriented regulations (target requirements) with regard

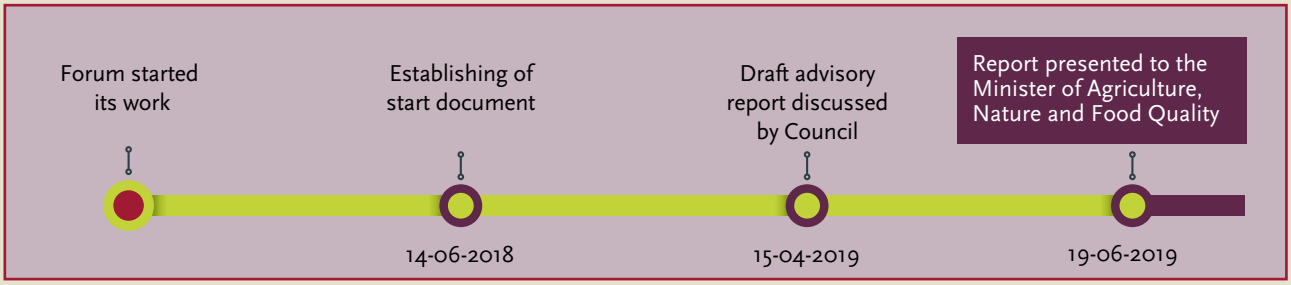
Working group chair Gé Backus

to animal welfare. At present prescriptive regulations often apply, for example covering the mandatory surface area per animal. Where monitoring is carried out based on sensor data, it is also possible to take animal behaviour as a criterion for licensing, for instance. That allows for more freedom for the animals and the livestock farmer.

Another recommendation is to ensure that data and data networks stay permanently accessible. Guarantee that networks remain open as much as possible. 'While maintaining privacy and respect for the ownership of data,' stresses Backus: 'The farmer's data must remain the property of the farmer'.

A further recommendation is to encourage all the parties concerned to collaborate on an open innovation system in which innovations are easily exchanged. Establish contact moments between the agri-food sector and high-tech to ensure the flow of information and encourage cross-overs. Also pay enough attention to digitisation in research and education, and the threats and opportunities that come with it.

Finally, parties working on data sharing, are advised do so in such a way that administrative tasks on the farm are reduced, thereby cutting back on the amount of duplicate paperwork livestock farmers and animal carers have to complete, enabling them to spend more time looking after their animals.



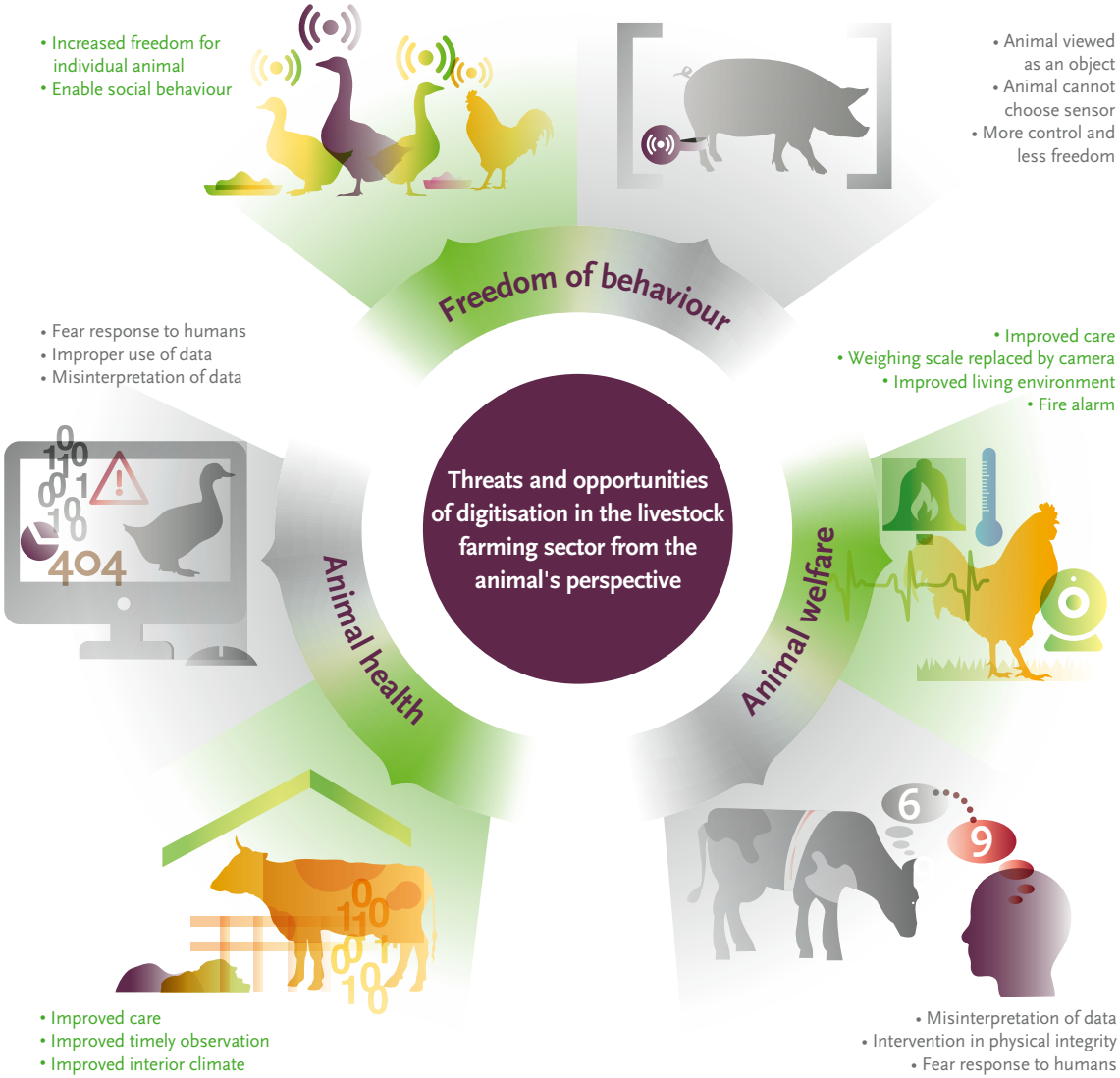


Figure 1: Opportunities and threats of digitization in livestock farming from the perspective of the animal

Brief summary of the report

The digitisation of the livestock farming sector is in full swing. Digitisation will become commonplace on livestock farms within five to ten years. This also has consequences for the animals. Increasingly opportunities are opening up for gathering data, using data for control purposes and sharing data. Opportunities as well as threats play a part in this. Because of more data becoming quickly available, opportunities arise throughout the entire livestock chain and because of combining different data, yielding new information and insights. Livestock farmers have more opportunities to ensure that the living environment of the animal matches their needs, with positive consequences for health and animal welfare. By replacing physical actions conducted on animals working conditions improve and the animals potentially experience less stress. The uneven distribution of data between parties in the supply chain (supplier, livestock farmer, processor, marketing organisation, consumer) can be reduced. Increased transparency will boost confidence in the sector and present consumers with a greater range of options for buying animal-friendly products.

Digitisation also brings threats. The steps leading from big data to reliable and relevant information and then to well-informed correct decisions are not automatic, and are also complex. Especially when it concerns the automatic adjustment of process equipment based on sensor data, caution and restraint should be exercised for now. Furthermore, the autonomy of animals and livestock farmers can decrease and consumers could experience less possibilities to identify with social-cultural values that are bound to foods.

Digitisation will have an impact on interrelationships in the livestock farming sector: between humans and animals, among humans, and among animals. The Council on Animal Affairs wishes to provide further insight into the impact of digitisation on animals in the livestock farming sector and on their care. This is partly determined by the influence of digitisation on animal caretakers/livestock farmers. They have the obligation to take good care of their animals. However, the fulfilment of this responsibility by the livestock farmers is a result of the interplay between their individual standards and values, working conditions and income. The final impact of digitisation on animal well-being does not only depend on technological developments, but also on the standards and values in society, legal frameworks and the economics of the food chain. The impact of digitisation is therefore viewed wholly from the perspective of the animals, livestock farmers, and market and society. A distinction is made between the effects of digitisation on:

- The health, welfare and freedom of choice of animals;
- The income, working conditions and management freedom of livestock farmers;
- Health and safety of foods, the values that are bound to foods, and consumers' freedom of choice;

Figure 2: Opportunities and threats of digitization in livestock farming from the perspective of the livestock farmer

By focusing our efforts on the above-mentioned topics, we will strengthen the opportunities and the threats are limited. In this light, the Council on Animal Affairs therefore advises that:

1. systems be based increasingly and more inherently on target requirements, where;
   a. supplementary to the steps taken by the Government to base environmental regulations on real-time data, the same should be done in respect of welfare. This also offers the possibility to make the welfare indicators, which were developed under the EU welfare Quality program, more suitable for usage by the livestock farmer.
   b. governments increasingly base their licensing systems on real-time measurements of the quality of the human and animal living environment in and around the barn rather than on the barn configuration.
   c. monitoring bodies place greater emphasis on these new target requirements as soon as they become available, with the understanding that the measurement results can also be related to the actions of the livestock farmer.
   d. governments and market parties jointly create a quality mark for reliable digital information, including a voluntary code of conduct, with a corresponding code commission where objections and appeals against misleading digital information can be made/filed against misleading digital information.
2. parties working on data sharing do so in such a way that administrative tasks on the farm are reduced, thereby cutting back on the amount of duplicate paperwork livestock farmers and animal carers have to complete, enabling them to spend more time looking after their animals.
3. the government assumes the responsibility of maintaining the open data networks by establishing appropriate frameworks and setting up a contact center where unavailable networks can be reported
4. the government and market parties encourage open innovations, where high tech and the livestock farming sector have easy access to one another. For instance, think of encouraging meetings where information can be shared openly. These meetings must be clearly announced and should be easy to find, including for businesses, institutions or persons who currently do not (yet) work in the livestock farming sector.
5. digitisation will be integrated in research and education, so that livestock farmers and consultants increase their skills in correctly interpreting information and act upon it accordingly. As a result, the information is used more for the benefit of the animals, and fewer or no adverse effects occur. This means that research universities and universities of applied sciences need to incorporate digitisation in their curriculum.
6. technology providers for the livestock farming sector should be able to provide insight into the validation and robustness of the developed and used at the request of monitoring authorities.
7. the debate on digitisation of the livestock farming sector is not conducted separately from the debate on policy measures in other fields, such as the debate on the new guidelines for data ownership, data sharing between banks or number portability, but circular agriculture as well, for example. This helps to limit the risks of unforeseen, adverse side effects.

Figure 3: Opportunities and threats of digitization in livestock farming from the perspective of the market and society

Annex

This document is a product of the entire Council on Animal Affairs. It was prepared by a working group composed of the RDA members G.P. van den Berg, Dr G.B.C. Backus (chair), Prof. B. Kemp, Prof. S. Haring, Prof. J.A.P. Heesterbeek, A. Kemps, Dr F.L.B. Meijboom and Dr H.A.P. Urlings. The work group was assisted in its activities by secretary M.H.W. Schakenraad and deputy secretary Dr K. van Hees of the RDA team.

Members of the Council on Animal Affairs

Prof.dr. J.J.M. van Alphen
Dr.ir. G.B.C. Backus
J.P. van den Berg
W.T.A.A.G.M. van den Bergh
Prof.dr. J.M. de Boer
Drs. H.R. Chalmers Hoynck van Papendrecht
Mr. A.G. Dijkhuis
Dr. N. Endenburg
Prof.dr.ir. J.W. Erisman
Drs. D. van Gennep
Prof.dr. M.A.M. Groenen
Prof.dr. S. Haring
Prof.dr.ir. L.A. den Hartog
A.L. ten Have-Mellema
Prof.dr.ir. J.A.P. Heesterbeek
Drs. G. Hofstra
H. Huijbers
Prof.dr.ir. A. van Huis
Prof.dr.ir. B. Kemp
A. Kemps
Dr. L.J.A. Lipman
Dr. F.L.B. Meijboom
Drs. F.E. Rietkerk
Mr. C.W. Ripmeester
Dr.ir. M.C.T. Scholten
Prof.dr. Y.H. Schukken
Ir. G.C. Six
Drs. M. Slob
Prof.dr. G.R. de Snoo
Mr.drs. J. Staman, voorzitter
Dr.ir. J.W.G.M. Swinkels
Drs. R.A. Tombrock
Prof.dr.ir. J.C.M. van Trijp
dr. H.A.P. Urlings
Dr. J.B.F. van der Valk
J. van de Ven
Drs. F.A.L.M. Verstappen

Design:
Ellen Bouma, www.ellenbouma.nl

Production and final editing:
Martijn de Groot, www.martijndegroot.com

Translation:
Metamorfose

Layout and printing:
Xerox/OBT, The Hague

Cover photo:
iStock

Photo on inside pages:
Paul Voorham

https://english.rda.nl/

Council on Animal Affairs (RDA)
Bezuidenhoutseweg 73
NL-2594 AC The Hague
The Netherlands

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